



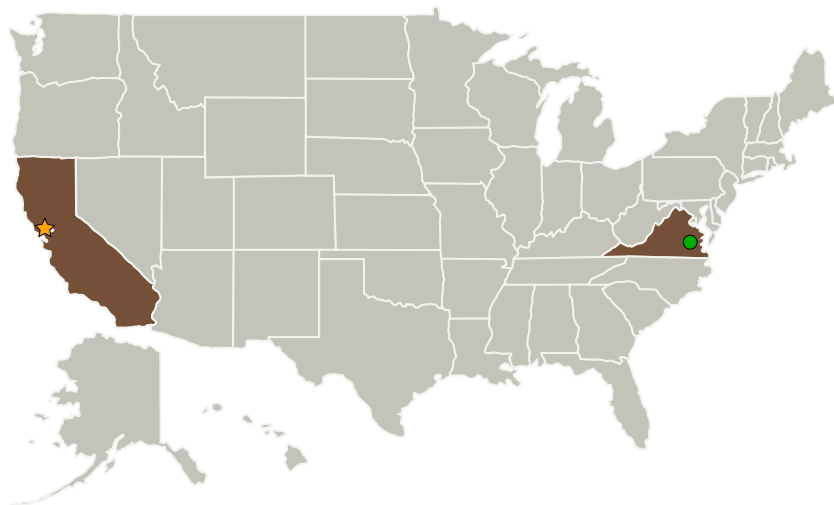
Project Introduction

Small scale flight testing can be conducted within the scope of ESM in several areas, including low-cost sounding rocket testing and cube-sat based testing.

Anticipated Benefits

NASA funded: There is no direct benefit to NASA funded missions, although the carrier spacecraft (TechEdSat) could be used to conduct LEO tests of candidate technologies. NASA unfunded: Develop propellantless deorbit capability which could enable low cost on-demand return of small payloads from ISS or LEO, as well as future "netlander" class missions at Mars or other planetary destinations. OGA: On demand return from LEO has potential application for DoD. Commercial: The Exo-Brake could be an enabling technology for on-demand sample return for the commercial sector, and we will pursue licensing when complete. Nation: The growth of the commercial LEO economy is fundamentally constrained by access; both low cost access to space, and reliable return from space. Exo-Brake directly addresses the latter bottleneck.

Primary U.S. Work Locations and Key Partners



EDL Flight Concepts

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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Ames Research Center (ARC)

Responsible Program:

Game Changing Development

EDL Flight Concepts

Completed Technology Project (2014 - 2017)



Organizations Performing Work	Role	Type	Location
★ Ames Research Center(ARC)	Lead Organization	NASA Center	Moffett Field, California
● Langley Research Center(LaRC)	Supporting Organization	NASA Center	Hampton, Virginia
University of Idaho	Supporting Organization	Academia	Moscow, Idaho

Primary U.S. Work Locations

California

Virginia

Project Transitions

**October 2014:** Project Start**September 2017:** Closed out

Closeout Summary: TES-6 is not funded by GCD in FY18, but it will actually fly in FY18. TRL will be assessed after the flight campaign. At the end of FY17, Exo-Brake is considered TRL4. With a successful TES-6 flight, the TRL will be assessed at TRL5.

Project Website:

<https://www.nasa.gov/directorates/spacetech/home/index.html>

Project Management

Program Director:

Mary J Werkheiser

Program Manager:

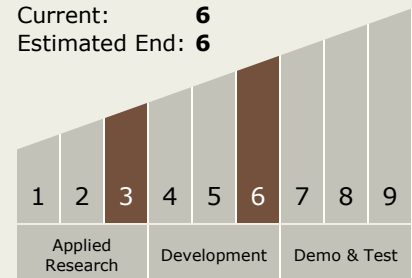
Gary F Meyering

Principal Investigator:

Michael J Wright

Technology Maturity (TRL)

Start: **3**
 Current: **6**
 Estimated End: **6**



Target Destination

Earth